

Portland and Southwestern Railroad Tunnel
T. 4N, R. 3W, NW 1/4 Section 15
Willamette Meridian
Columbia County
Oregon

HAER No. OR-3

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
Washington, D.C. 20240

PORTLAND AND SOUTHWESTERN RAILROAD TUNNEL
Data Sheet

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1. Historic name and source of historic name:

The Portland and Southwestern Railroad Tunnel derives its name from the short-lived railroad company which purchased the right-of-way and built the railroad and tunnel in order to transport logs. It is commonly known as the Nehalem Divide Railroad Tunnel.

2. Complete address:

T. 4N, R. 3W, NW 1/4 Section 15, Willamette Meridian, Columbia County, Oregon

3. Materials of construction:

Fir timber

4. Date of construction:

1919-1920

5. Builders:

Porter Brothers construction company

6. Major alterations and additions:

The tracks in the tunnel were removed when use was discontinued circa 1943.

7. Major historical events or people associated with the structure:

None known

8. Dimensions:

1,712 feet in length, 16 feet in width, and 22 1/2 feet maximum height

9. Present owner:

Bureau of Land Management

10. Significance:

The Portland and Southwestern Railroad Tunnel is one of the longer semi-temporary railroad tunnels built for logging transport in Oregon and the only tunnel to cross the divide of the Oregon coastal range. It provides a unique surviving example of the timber construction typical of the early twentieth century before tunnel linings were improved by cement or masonry overlaying the timbers. The railroad tunnel was built solely for the purpose of transporting timber and served to open up the rich Nehalem Valley to loggers.

11. Bibliographic citations:

Attached

Portland And Southwestern Railroad Tunnel
"THE NEHALEM DIVIDE RAILROAD TUNNEL"

by

Susan Worthington

USDI - Bureau of Land Management
Salem District
1976

INTRODUCTION

After 1900 many logging railroads were built in Oregon. Tunnels played a significant role in several of these railroad systems. It is the purpose of this paper to support the nomination of one of these tunnels, the Nehalem Divide Railroad Tunnel, for inclusion in the National Register of Historic Places.

The Nehalem Divide Railroad Tunnel is located on the grade between Chapman and Pittsburg, Oregon, straddling the divide of the Coast Range between the East Fork Nehalem River drainage and the North Scappoose Creek drainage. It is well known only by railroad buffs and loggers. The tunnel served to open up the rich Nehalem Valley area to loggers as they moved up the major drainages from the Columbia River at the turn of the century. The tunnel is 1,712 feet long and located at milepost 13.5 from the log dump on the Willamette Slough (now called Multnomah Channel). The elevation of the hill above the tunnel is 1,224 feet at its summit. The tunnel slopes gently downward towards the northeast and crosses the divide approximately 500 feet from its west portal.¹

The tunnel is unique. It was once part of the Portland & Southwestern Railroad, a short-lived line built solely for the purpose of transporting timber. This railroad grew out into the woods and never went from place to place like a proper railroad should.

The tunnel was built using the type of timbered construction typical of the early twentieth century. The other tunnels remaining in use from this era progressed to a second stage in which the linings were improved by cement or masonry overlaying the timbers. The Nehalem Divide Tunnel was never improved further, and it remains an example of that early tunnel construction.

HISTORICAL BACKGROUND

By 1900, the supply of old-growth timber was virtually exhausted in the eastern and mid-western United States. The focus of the logging industry shifted to the south and far west.² Among the multitude of loggers to come out west were two brothers named Simcoe and Fred Chapman. Together, they incorporated the Chapman Timber Co. in 1901. In 1905, they opened a logging camp and appropriately named it Chapman, Oregon. Next, these energetic men incorporated the Portland & Southwestern Railroad, and it was under construction by 1906. The railroad was used to transport logs to the log dump in the Willamette Slough.³

Originally the Company planned to build the railroad from its terminus on the Willamette Slough all the way to the coast at Nehalem, Oregon. The construction of the main line progressed in a spurt-like fashion as the railroad explored its way up the valley. The general procedure was to purchase the right-of-way, construct a segment of the rails, log the land they either owned or rented, then build a camp and move on to open up other areas. There were a total of nine camps built along the railroad during its use.⁴

The Portland & Southwestern was classified as a common carrier, and heavy taxes were levied on the railroad.⁵ For a short time, the railroad was used for excursion trips to facilitate the sale of real estate in the area.⁶ Many of the local inhabitants consented to the building of the railroad through their property in hopes that it would eventually connect to Vernonia, Oregon, and points beyond.⁷ This build-and-log method made progress along the railroad slow. The first 8-mile stretch was completed up to the base of the hills 2 miles beyond Chapman, which had a population of 400 at that time. Unfortunately, the terrain beyond Chapman was more

difficult. The grade was steeper, and construction costs were higher. It was too expensive for the Chapmans, so they sold out to Henry Turrish in 1910.⁸ However, the name of the Company remained Chapman Timber Co. until 1913.⁹

By the time Henry Turrish bought the railroad, the decision to cross the divide of the Coast Range was imminent. A railroad directly over the top of the divide was not practical, so tunneling was considered. Years later, when the Crown Zellerbach Company was considering the construction of a log truck road over the same pass, their surveyor said it could not be done. Crown Zellerbach Company then hired the county surveyor and built the present road.¹⁰

Switchbacks would have been impossibly slow, and it was necessary to have a fairly uniform grade. As it was, the grade approaching the tunnel area reached as much as 10 percent.¹¹ The tunnel was built in the narrowest point in the divide.¹² Work began on the tunnel in 1910, 8 years before the tracks reached its eastern portal, although the original tunnel plans are dated 1919.

During the second decade, the demand for timber dropped. Work on both the railroad and tunnel ceased until 1913. A group of lumbermen from Eau Claire, Wisconsin, purchased Turrish's holdings and reorganized the whole operation as the Nehalem Timber and Logging Co.¹³ Work began once more, and by 1918 the 3-mile extension of trackage up to the tunnel's eastern portal was completed.¹⁴

Construction plans for the tunnel were drawn up for the Portland & Southwestern Railroad by the Lumbermen's Engineering Co. of Portland, Oregon, under chief engineer H.D. Halsey. The design was typical of railroad tunnels of the day. The plans designate it as a "Standard Railway Tunnel". The lining of this standard tunnel

consisted of a series of arches or ribbing made of 12" by 12" timbers. Lagging made of 4" by 6" boards connected the arches. Struts were used along the floor of the tunnel to support the walls and complete the structure. The maximum width was approximately 16 feet, and the height was 22½ feet. The plans call for the excavation of 13.05 cubic yards of material per linear foot.¹⁵

The excavation was done by hand and carried out simultaneously from both ends.¹⁶ The composition of the hill is mostly sandstone and layers of fossil material. Because this type of earth is quite loose, there were major difficulties with cave-ins, especially at the western end.¹⁷ There were also the usual problems of water seepage and earth pressure.

In 1919 the construction of the lining began. The task was awarded to the Porter Brothers. Nearly one million board feet of timber were used to construct the tunnel. The estimated cost of construction was one-quarter of a million dollars. The tunnel was finally completed in August, 1920.¹⁸ The next year, the track was extended 3 miles beyond the tunnel, thus giving the railroad a total of 14 miles of standard track.¹⁹

The tunnel was in use from 1921 to 1943. During this period, it changed owners twice. Clark & Wilson Lumber Co., originally from Goble, Oregon, succeeded the Nehalem Timber & Logging Co. in 1927. They, in turn, were succeeded by the Crown Zellerbach Corporation in 1944.²⁰ Throughout those years the tunnel was principally used for logging purposes. Fifty-ton Lima Shay geared engines were used to haul the logs over the divide.²¹ The railroad men would work "26 hours a day" making more than one trip daily to the log dump on the Willamette Slough.²² During peak years, one million board feet of timber passed through the tunnel daily. An

estimated 350,000 acres of old-growth timber were in the area in 1895. By 1945, only 7,000 acres of old-growth were left. Approximately 15 billion board feet of timber had been cut in 50 years.²³

The railroad finally went up along the Nehalem River with several off-shoots into the woods. It terminated just beyond Oak Ranch Creek.²⁴ Evidence of the old railroad grade can still be seen including remnants of the various trestles. Sidehill trestles are also visible. The Crown Zellerbach Corporation considered renovating the tunnel and using it for their log trucks, but the cost of relining and lighting the tunnel was estimated at over one million dollars -- a prohibitive figure. So, use of the tunnel was discontinued and the tracks were pulled up and salvaged.²⁵

THE NEHALEM DIVIDE TUNNEL TODAY

According to the Bureau of Land Management, the tunnel is currently "in a deteriorating condition". There are numerous minor failures as well as five major cave-ins.²⁶ Both portal bracings as well as the tunnel lining 10 feet into the tunnel are missing. The timbers are discolored, and there is evidence of extensive rot. In the opinion of Mr. Henry Steinbrugge, bridge and tunnel engineer for the Federal Highway Administration, "the 55 year-old timbers have long exceeded their life expectancy."²⁷ Water flows into the tunnel's western portal from the East Fork Nehalem River and one of its small tributaries -- both of which are intermittent streams. This water meanders through the tunnel and flows out of its eastern portal into North Scappoose Creek. Silt brought in by the water has buried the railroad bed as much as 8 feet deep at the western portal, while some of the old ties are still

visible at the eastern portal. The tunnel is extremely dangerous for the exploring public in its present condition. There has been past evidence of human activity around the tunnel.²⁸

If the tunnel is to be preserved, the two streams at the western portal should be diverted through the tunnel or back down the western drainage of the divide. This stream diversion could be accomplished, and the Bureau of Land Management has earmarked a small sum to begin this project.

Restoration would be hazardous work, requiring professionals to replace the timbers. The entire lining would have to be replaced after the silt and fallen rock had been removed. Mr. Steinbrugge estimated the cost of restoration in replica at nearly three quarters of a million dollars.²⁹

CONCLUSION

The Nehalem Divide Railroad Tunnel is unique among its category. Numerous railroads and few other tunnels in Oregon were built to augment the transport of timber, but only a few survived the logging boom. There had been stiff competition, and the price of building railroads kept increasing in comparison to the use of log trucks.

If the railroad had reached the Oregon coast at Nehalem as originally planned, it would have inevitably been improved.³⁰ A tunnel similar to the Nehalem Divide Tunnel, built by the Spokane, Portland & Seattle Railroad at Cornelius Pass, was eventually concrete lined because the railroad remained in use. Another similar tunnel was "day-lighted" by removing the entire roof of the tunnel.³¹ The Nehalem

Divide Tunnel was not only one of the longer of these semi-temporary tunnels, but it was also the only tunnel which crossed the divide of the Coast Range. The Nehalem Divide Tunnel can be reached by the public although it is no longer in use. It is located in a scenic part of Oregon, not far from BLM's Scapponia Recreation Site.

The year 1920 doesn't seem like a long time ago. But considering Oregon history, the tunnel was built in relatively early years. Today, there are a few scattered homes in Chapman, and trucks still carry logs down to the Multnomah Channel. The logs are smaller now, and many of the men of the logging boom are no longer alive.³² Those who can remember have not forgotten the Portland & Southwestern Railroad with its tunnel through the divide. It remains a fragile link of Oregon history.

FOOTNOTES

1. L.H. McCarter, in an interview at Crown Zellerbach Corporation, Portland, Oregon, May 6, 1975.
2. Dorothy O. Johansen, Empire of the Columbia - A History of the Pacific Northwest, 2nd ed. (New York: Harper and Row, 1967), p. 400.
3. John T. Labbe, interview at his home, Beaverton, Oregon, May 21, 1975.
4. McCarter, loc. cit.
5. Labbe, loc. cit.
6. Kramer Adams, Logging Railroads of the West (New York: Bonanza Books, 1961), p. 156.
7. Bud Weigand, interview in his office, Crown Zellerbach Corporation, E.P. Stamm Tree Farm, Pittsburg, Oregon, May 1, 1975.
8. Labbe, loc. cit.
9. Ibid.
10. Weigand, loc. cit.
11. Makinster, interview at his home, Pittsburg, Oregon, May 6, 1975.
12. Ibid.
13. Labbe, loc. cit.
14. Ibid.
15. H. D. Halsey, chief engineer, Lumbermen's Engineering Co., Standard Railroad Tunnel (plans), Portland, Oregon, June 1919.
16. Makinster, loc. cit.
17. Ibid.
18. Labbe, loc. cit.
19. Ibid.
20. George A. Nelson, "Brief History of Farming and Cutting of Timber in Columbia County", Columbia County History, I (1961), pp. 30-36.

21. Ralph W. Andrews, This Was Logging (Seattle: Superior Publishing Company, 1954), p. 127.
22. Ralph Reynolds, railroad engineer, interview in his home, Vernonia, Oregon, May 16, 1975.
23. Nelson, op. cit.
24. Labbe, loc. cit.
25. Weigand, loc. cit.
26. National Register of Historic Places Inventory - Nomination Form for the Nehalem Divide Railroad Tunnel, p. 2, Bureau of Land Management, Salem, Oregon.
27. Henry Steinbrugge, bridge and tunnel engineer, Federal Highway Administration, Department of Transportation, interview in his office, Portland, Oregon, May 27, 1975.
28. There was smoke seen coming out of the tunnel's western portal in the summers of 1970 and 1971. The skull and cross bones was once flying over the tunnel (Bud Weigand, loc. cit.). A note in a bottle was found staking claim to the tunnel (McCarter, loc. cit.).
29. Steinbrugge, loc. cit.
30. Labbe, loc. cit.
31. Harlan F. Moy, civil engineer, Burlington Northern Railroads, interview in his office, Portland, Oregon, June 4, 1975.
32. The Superintendant of the Nehalem Timber & Logging Company requested when he died that his ashes be placed on top of the tunnel. His wishes were honored in 1972 (Frances Roeser, personal letter).

BIBLIOGRAPHY

I. Manuscript Sources

Hawkins, Glen F. "Timber in Our Home Town" (speech transcript).
Vernonia Library, Vernonia, Oregon, March 9, 1975.

Roeser, Frances. Letter, May 23, 1975.

II. Interviews

Labbe, John T. Beaverton, Oregon. Interview, May 21, 1975.

Makinster. Pittsburg, Oregon. Interview, May 6, 1975.

McCarter, L. H. Office Engineer, Crown Zellerbach Corporation,
Portland, Oregon. Interview, May 6, 1975.

Moy, Harlan F. Civil Engineer, Burlington Northern Railroad,
Portland, Oregon. Interview, June 4, 1975.

Parker, Charles T. Scappoose Sand and Gravel, Portland, Oregon.
Interview, June 4, 1975.

Reynolds, Ralph. Railroad Engineer, Vernonia, Oregon. Interview,
May 16, 1975.

Steinbrugge, Henry. Federal Highway Administration, Department of
Transportation, Bridge and Tunnel Engineer, Portland, Oregon.
Interview, May 27, 1975.

Weigand, Bud. Crown Zellerbach Corporation's E. P. Stamm Tree Farm,
Pittsburg, Oregon. Interview, May 27, 1975.

III. Articles

Baldwin, Lula May. "The Story of a Logging Camp", St. Helens
Sentinel Mist - Columbia County Centennial Edition 1854-1954.
St. Helens, Oregon, p. 45.

Becker, Pearl. "Chapman Community", Columbia County History, St. Helens,
Oregon, X (1971), pp. 32-33.

Nelson, George A. "Brief History of Farming and Cutting of Timber in
Columbia County", Columbia County History. St. Helens, Oregon,
I (1961), pp. 30-36.

"Scappoose", St. Helens Mist. St. Helens, Oregon. February 21, 1913,
p. 1.

IV. Books

Adams, Kramer. Logging Railroads of the West. New York: Bonanza Books, 1961.

Andrews, Ralph W. This Was Logging. Seattle: Superior Publishing Company, 1954.

Johansen, Dorothy O. Empire of the Columbia - A History of the Pacific Northwest. 2nd ed. New York: Harper and Row, 1967.

Labbe, John T. and Goe, Vernon. Railroads in the Woods. Seattle: Superior Publishing Company, 1961.

V. Miscellaneous

Halsey, H. D. Chief Engineer, Lumbermen's Engineering Co., Standard Railroad Tunnel (plans). Portland, Oregon, June 1919.

National Register of Historic Places Inventory - Nomination Form for the Nehalem Divide Railroad Tunnel, prepared by Schroeder and Biggs, November 29, 1973.

"Shay Locomotives" Georgia Pacific Logging History Museum, (Exhibit), Portland, Oregon.

PORTLAND & SOUTHWESTERN RAILROAD TUNNEL

T. 4N, P. 3W, sec. 15

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